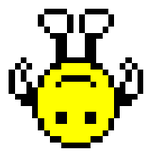
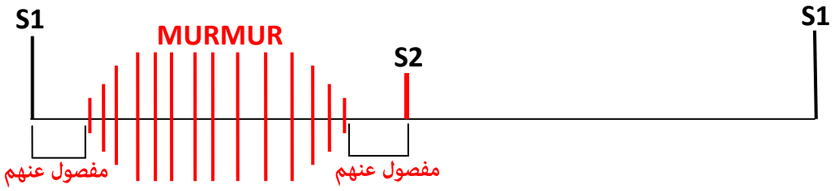
CARDIOLOGY
Clinical Cases

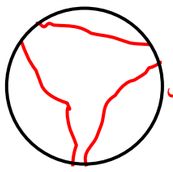
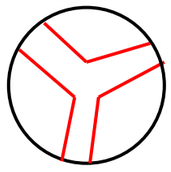
كده

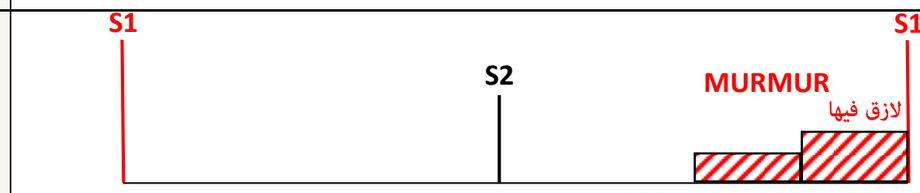
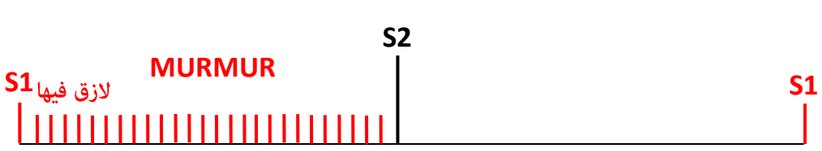
I Think we are Finish our Branch



from Dr. **Ehab**

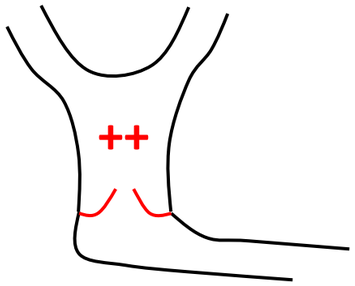
			Aortic Stenosis (A.S.)	Aortic Regurg (A.R.)
▪ **Etiology** :			• **Congenital** .. طفل • **Rheumatic Fever** .. متوسط العمر • **Calcification** .. عجوز	أسبابه كتيييرة • The **COMMONEST** Cause in Egypt is **Rheumatic Fever**
▪ **Clinical**	▪ **H/O** :		• **Low COP .. up to Syncope** (دوخة وزغللة)	• **Palpitation** (حاسس بـ رفرفة)
			• then, **ANGINAL PAIN .. for a Long Period** * if **Left Ventricular FAILURE** occur → **Dyspnea** (كرشة نفس ونهجان) **but it's VERY LATE**	
	▪ **General Examination** :		*here, it's **Useless**	★ **Peripheral Signs of A.R.** (إذا لقيتهم .. تعرف بيهم تشخيص الحالة ع طول)
	▪ **Local Examination** : (**Inspection, Palpation & Percussion**)		*here, it's **Useless** • Apex → **Sustained Apex**	• Apex → **Hyper-dynamic Apex (Volume Overload)** • **Aortic Pulsations** — **Dancing Pericardium**
			* if **Left Ventricular DILATATION** occur → **Apex will Shifted Outward & Down**	
	▪ **Auscultation** :	• **Normal Sound**	**S2** : ↓ **Muffled** (بس مش شرط)	Normal (بس ديه آراء آراء .. في كتب كاتبة حجات مختلفة) it Depends on **the Etiology**
		• **Murmur**		
			★ **MURMUR** سهل جداً — **+ Thrill**	**MURMUR** صعب جداً — **No Thrill**
			• Time: **Mid Systolic (Systolic Ejection)**	**Early Diastole**
			• Character: **Harsh**	**Soft Blowing Murmur** (شبه صوت النفس)
			• Site: **1st Aortic Area**	**2nd Aortic Area**
			• Propagation: **To Carotid & to Apex ..** (طـالع نـازل)	✖
			• ↑↑ by: لما العيان : يميل لـ قدام .. أو يخرج نفسه	لما العيان : يميل لـ قدام .. أو يخرج نفسه
			N.B. The SEVERITY of the Disease is Detected by Length of Murmur & Intensity of S2	***Precaution** : (عشان النفس) وأكـتـم .. (++) قول لـ العيان .. خرج نفسك
		• **Additional Sounds**	–	–
▪ **Complication**			Search for **A.F.** & **Pulmonary HTN** in The Cases	
▪ **Investigations**			by Scheme	
▪ **Treatment**			by Scheme	
▪ **Oral Qs**			• The **Most Common** Cause of A.S. in Egypt is **Rheumatic Fever** • The **Most Common** Cause of A.S. in the World is **Congenital**	• How Dose the Case could be **Isolated A.R. while the Etiology is Rheumatic Fever ?** - maybe it is **One of the Rare % of Rh. Fever** - maybe it is **Isolated in Auscultation .. but in ECHO it's Double Leision**
			• The **Best Investigation** is **ECHO & DOPPLER**	• The **Best Investigation** is **ECHO & DOPPLER**
			• The **Assessment of Severity** is done by **Pressure Gradient (ABP)** "if **More than 50 Difference** >> it's **Severe**"	• The **Assessment of Severity** is done by **its Effect on the Lt. Ventricle** - for Degree of Dilatation (**Dimensions**) & for Function (**Ejection Fraction**)
			• The **Initial Starting Treatment for these Cases** is **PROPHYLACTIC (Prevention of Rheumatic & IEC)** "حسب الحالة فيها أيه"	
			• The **Treatment of Angina** is **Sub-Lingual Nitrate** (ياخد القرص وهو قاعد)	• The **Treatment Which Improves the Regurg** is **Small Dose of Vaso-Dilator (Captopril)**
			• The **Patient Can go for Interventional Treatment with 2 Conditions must be fulfilled** is **the Lesion is Isolated & Non-Calcified** → **Balloon-Aortic-Valvo-Plasty** (بس نتائجه وحشة)	• The **Patient Can NOT go for Interventional Treatment**
				• The **2 Infection Diseases Could Cause A.R.** are **Syphilis & Infective Endocarditis**
				• in A.R. Cases **Which Joints Do You Prefer to Exam for Diagnosis ?** • Peripheral Joints : - Big Joints .. for **Rheumatic** - Small Joints .. for **Rheumatoid** or **Marfan $** • Axial Joints : for **Ankylosing Spondylitis**

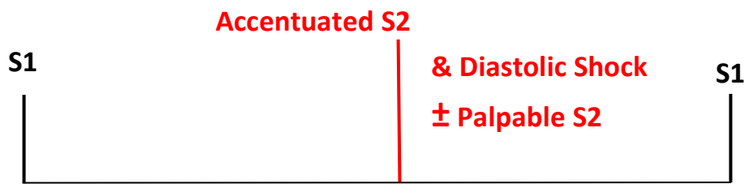
in case of Aortic Regurg (A.R.) :					
▪ **the Apex** :	**Lt. Vent.** هو معمول من الـ	→	**Localized**		
	Volume Overload وبـ يتأثر بـ الـ	→	**Hyper-dynamic**		
	Lt. Vent. Dilatation .. فـ هـ يعمل	→	**Shifted Outward & Down**		
▪ **Heart Sound** :	it Depends on **the Etiology**				
	 كشكش In **Rheumatic Fever** Heart Sounds : ↓ **Muffled**			 المسافة ما بينهم كبرت Here, Heart Sounds : ↑ **Accentuated**	
▪ **if there's a Patient .. with (A.R. Murmur) + (M.S. Murmur) .. what's the Possibilities for that ?!**					**يسألك الدكتور .. تفرق ما بين 1 & 2 إزاي ؟!**
1-	He is an **A.R. Patient** .. with an **ORGANIC** A.R. Murmur , with **FUNCTIONING** M.S. Murmur .. ώ called [**Austin-Flint Murmur**] As the Blood ώ come back from Aortic Valve .. could Prevent Mitral Valve from Opening			**FUNCTIONING** M.S. Murmur	No Opening Snap + No Thrill
2-	He is a **Patient with A.R. + M.S. Lesions** .. ده يفسر حاجة This will **affect the Peripheral Signs of A.R. & Decrease it** .. وبيوظ حاجة This mean that the Etiology is **Rheumatic Fever** .. **Not** a Marfan $ .. & even if you find Marfan Signs in the case this make it (**Marfanoid** NOT Marfan $)			**ORGANIC** M.S. Murmur	There's **Opening Snap** **+ Thrill**

	Mitral Stenosis (M.S.)	Mitral Regurg (M.R.)
▪ Introduction for M.S. :	شكوته / Stages / هـ تسمع أيه بـ سماعتك ؟! Dyspnea — 1- Asymptomatic — M.S. Murmur Only Low COP — 2- Pulm. Congestion Systemic Venous Congestion (Mainly Edema) — 3- Pulmonary HTN — + P. HTN 4- Rt. V.F. — + if Rt. Vent Dilate → Retract the Tricuspid Ring → T.R. Murmur (may be heard)	· what is the Effect of Pregnancy on M.S. Patient ? (الحالة هـ تسوء) will Add +1 Stage in NYHA Classification until the Labour So, Pregnancy is NEVER Allowed in Patient with NYHA 4
▪ Etiology :	· Rheumatic Fever in 99% of cases This the ONLY Disease which ISOLATED LEISION in Rheumatic Fever	أسبابه كتيييرة • The COMMONEST Cause in Egypt is Mitral Valve Prolapse, 2nd Rheumatic Fever, 3rd Ischemia
▪ Clinical — ▪ H/O :	· DYSPNEA (كرشة نفس ونهجان) → Low COP (دوخة وزغللة) → Systemic Congestion (Edema) ± A.F. (رفرفة) — Stage المريض الوحيد اللي بـ يبدأ بـ كرشة نفس محترمة .. ولازم تهتم بيها وتعمل لها	· Palpitation (حاسس بـ رفرفة) & After a LONG PERIOD OF TIME L.V.F. may occur (كرشة نفس ونهجان بس متآخر جداً جداً)
▪ General Examination :	• 3 أرقام — Pulse (for A.F.) • 3 عامة — Decubitus (for Orthopnea) • 3 موزعة — Edema in L.L. (for Rt. Sided H.F.) + Malar Flush شوف خدوده لا يكون لونهم أحمر · what it the Mechanism "من النظري" · it's Not Specific · D.D. from Systemic Lupus → Butterfly Rash ع مناخيره كمان	*here, it's Useless
▪ Local Examination : (Inspection, Palpation & Percussion)	· Left Atrial Enlargement لازم يحصل ± Right Vent. Enlargement (Never Left Vent.) · Apex → Slapping Apex	· Left Atrial Enlargement لازم يحصل ± Left Vent. Enlargement (Never Right Vent.) · Apex → Hyper-dynamic Apex & Shifted Outward and Downward
▪ Auscultation : · Normal Sound	S1 : ↑ Accentuated — · S1 may be Muffled in MS if there's Calcification or it's Double Mitral	S1 : ↓ Muffled — · S1 may be Accentuated in MR if it's Double Mitral Only
· Murmur		
· Time	Mid Diastolic with Pre-systolic Accentuation	Pan Systolic
· Character	Rumbling "يبرطم"	Soft (in 80% of cases) or Harsh
· Site	Apex	Apex
· Propagation	✖ Localized	To Axilla (in Anterior Leaflet Disease) & to Base (in Posterior Leaflet Disease)
· ↑↑ by	لما العيان : يميل على جنبه الشمال .. أو يعمل مجهود	لما العيان : يميل على جنبه الشمال .. أو يعمل مجهود
	+ Thrill	+ Thrill (& TIME it)
	· Effect of A.F. in Auscultation : - S1 → Variable Intensity - Murmur → No Pre-systolic Accentuation - O.S. → it Persist (لا تختفي)	
	*Precaution : it's a LOW Pitch Sound .. Heard by the CONE + "حط السماعة خفيف"	–
· Additional Sounds	• Opening Snap (O.S.)	–
▪ Complication	Search for A.F. & Pulmonary HTN in The Cases	
▪ Investigations	· The Best Investigation is ECHO & DOPPLER	
	1- ECG 2- X-ray 3- ECHO & DOPPLER } تقولهم وتسكت · The Main 4 Points in ECHO Report are : - Valve Area (Assessment of Severity) - Pulmonary Pressure - Mitral Score - is there's a Thrombus or Not (By TEE)	4- Catheter : زمان "تقولها إذا الدكتور سأل عنها بس" to detect if it's Reversible or Ir-reversible P. HTN - Reversible (due to V.C.) - while Ir-reversible (due to Fibrosis) هـ نحط القسطرة ونقيس الضغط لـ العيان .. وبعدين نحقن (Vaso-Dilator) ونقيس الضغط تاني .. إذا أختلف = Reversible
	- ECHO & DOPPLER · The Assessment of Severity is done by its Effect on the Lt. Ventricle - for Degree of Dilatation (Dimensions) & for Function (Ejection Fraction)	
▪ Treatment	Medically: The Initial Starting Treatment for these Cases is PROPHYLACTIC (Prevention of Rheumatic & IEC) "حسب الحالة فيها أيه" · Rest, Salt Retention & Diuresis ... for Dyspnea	Interventional: · Balloon-Mitral-Valvo-Plasty (Trans-Septal Technique) الأفضل Surgery

Pulmonary Hypertension (P. HTN)

Stage 1:
++ Pressure in Pulmonary Artery





سهل يتسمع

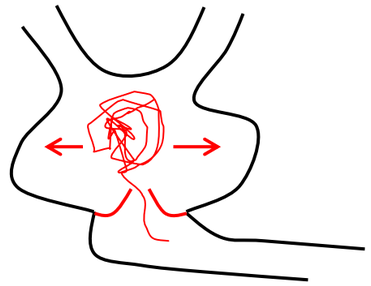
بس تعملها كـ التالي ..

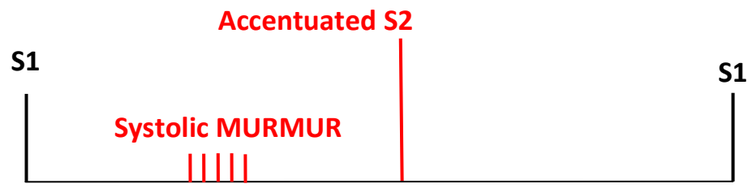
Move Your Stethoscope from the Left of the Sternum (Pulmonary Area) to the Right of it (Aortic Area)

You will Find **S2 ++++ at Pulmonary Area** than Aortic Area

this **= Accentuated S2 with Accentuated Pulmonary Component**

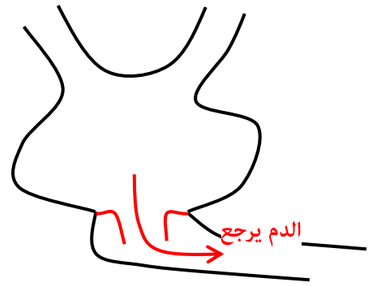
Stage 2:
Dilatation of Pulmonary Artery withOut Dilatation of Pulmonary Valve

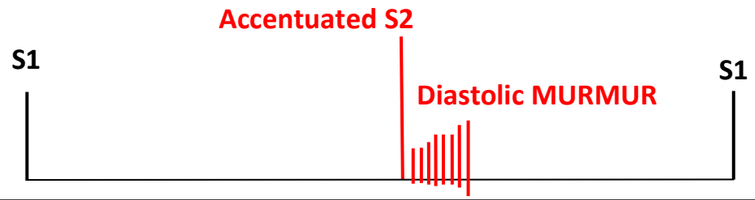




& you can Find a **Pulmonary Pulsation & Dullness**

Stage 3:
Retract the Pulmonary Valve (Pulmonary Valve Regurg)





Diastolic MURMUR of Pulmonary Valve Regurg

=

Graham Steell Murmur

[is a heart murmur typically **associated with pulmonary regurgitation**. It is a **high pitched early diastolic** murmur heard best at the **left sternal edge in the second intercostal space** with the patient **in full inspiration**]

This Murmur is in Unstable Patient (so, **Actually You will NOT hear it**)

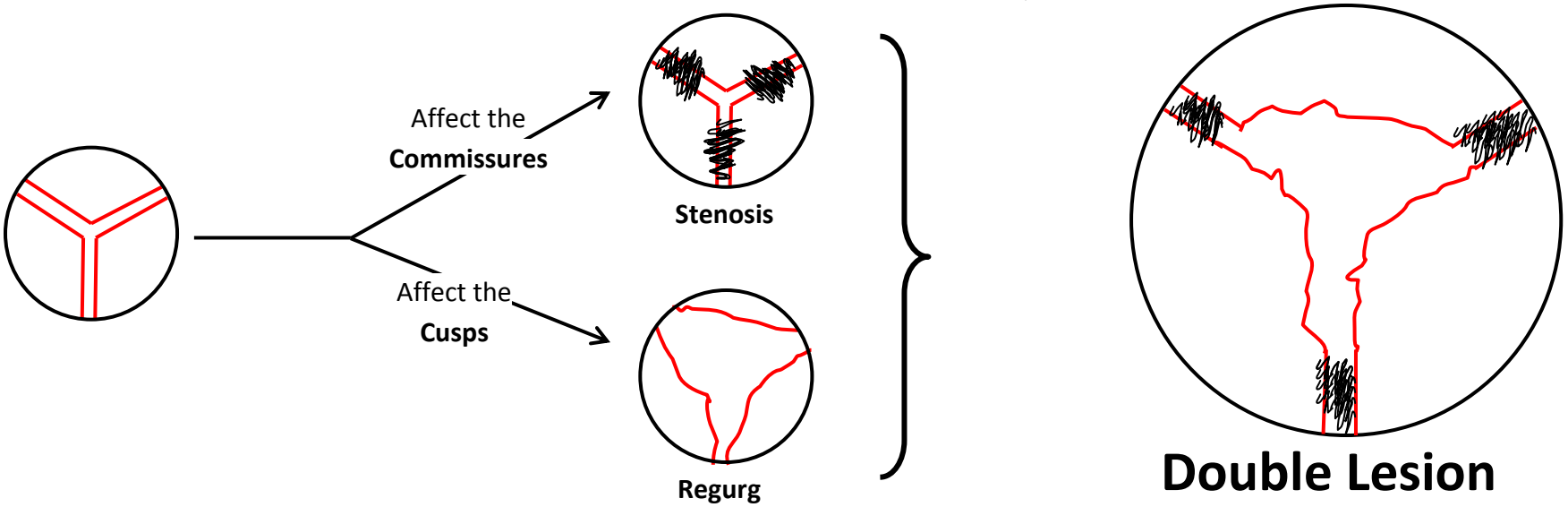
Double Aorta	Double Mitral

مين بـ يعمله ؟!

Rheumatic Fever ONLY

بـ يعملها إزاي ؟!

via **Fibrosis** "يلحم ويكرمش"



نعرفه إزاي ؟!

Low COP .. up to Syncope (دوخة وزغللة) + Palpitation (رفرفة)	**H/O**	**DYSPNEA (كرشة نفس ونهجان) + Palpitation (رفرفة)**
2 Murmurs should be heard	**Examination**	**2 Murmurs** should be heard **S1:** حسب مين اللي له اليد العُليا

&Take Care! The Case may be A.R. Only .. Not Double Aorta
in that **A.R. Murmur** is the **Organic** Diastolic Murmur
while with Volume Overload
→ it will produce **Functioning** Systolic **A.S. Murmur**
***so you Should Diff. between Functioning & Systolic A.S. Murmur**

Organic A.S.	Harsh	طالع نازل	Thrill	H/O of Low COP
Functioning A.S.	Soft	✖	✖	✖

أيه اللي يشككني أن حالة الـ M.R. هي في الحقيقة Double Mitral ؟!

- **by H/O** : Dyspnea start very Early before other Symptoms
- **by General Exam** : A.F., Orthopnea "دخلت ع العيان لقيته قاعد"
*N.B. M.R. Produce Orthopnea in Terminal Stage "ما ينزلش عملي"
- **by Local Exam** : Rt. Vent. Enlargement , Pulmonary HTN "سمعته"
+ S1 Accentuated

Peripheral Signs of A.R. *if Marked Signs → A.R. is Predominant	Predominance Determined by	S1 *if Accentuated S1 → M.S. is Predominant

■ Tricuspid Regurg (T.R.) — The Only Case for Rt. Sided Lesions

أشخصه إزاي ؟

- by H/O : Symptoms of Systemic Venous Congestion (رجله تورم ، جنبه يوجعه ، الأكل يتعبه ، (*بطنه تعلى قبل رجله ما تورم
- by General Exam : Signs of Systemic Venous Congestion :
  1• Neck Veins
  2• Pulsating Liver
  3• Edema + Ascites
- by Local Exam : Rt. Ventricular Enlargement & maybe Rt. Atrial Enlargement + T.R. Murmur

T.R. is NEVER to be Isolated in the Exam ..
it's ALWAYS ASSOCIATED with ADVANCED Mitral Valve Disease (MVD)

★ **so, when you have a case of MVD in the Exam .. Search for :**

① حجات تخليني أشك أن مع الحالة في T.R.

Systemic Venous Congestion
- by H/O : (رجله تورم ، جنبه يوجعه ، الأكل يتعبه ، (*بطنه تعلى قبل رجله ما تورم
- by General Exam : Edema + Ascites
- by Local Exam : Rt. Ventricular Enlargement

But it Just let you SUSPECT ONLY .. as it may be an ADVANCED MVD reaching the Rt. Vent. Failure Level

② حجات تخليني أتأكد أن مع الحالة في T.R.

It's Only by Hearing a T.R. Murmur by the Stethoscope
- Time : Pan Systolic
- Character : Soft or Harsh
- Site of Max. Intensity : Tricuspid Area (Lower En of the Sternum to the Left)
- Propagation : to the Base of Heart (BUT NEVER Propagate to the Axilla)
- ↑↑ by : +++ by Respiration (as any Rt. Sided Lesion) [this called Carvallo's sign]

بس الزيادة ديه .. ضئيلة جداً .. ومش في كل المرضى .. ومش في كل الضربات ..

بس دول تعتمد عليهم في العملي أكتر

N.B. it's Similar to M.R. Murmur — تفرقهم عن بعض إزاي ؟!

تقولهم لما يطلب
1- Non specific
2- Non specific

قولها الأول
3- Specific

③ لما تتأكد من وجوده جهز حاجتين عشان هـ يسألوك عليهم أكيد

1• Neck Veins : in T.R. it's - Level : Congested Pulsating
- Wave Form : Systolic Expansion

2• Pulsating Liver : Technique

1
حوط الكبد بـ إيديك الاتنين ..
ودخل إيديك الشمال الأول .. ورا آخر Rib
وبعدها دخل إيدك اليمين تحت الـ Costal Margin

2
بعدين خلي عينك ع وش العيان ..
ودوس عشان تشوف الـ Tenderness

3
بعدين ثبت أيدك ما تدوسش تاني
وشيل عينك من ع وش العيان وبص ع الكبد
وتقول لـ العيان : وقف نفسك

هتلاقي الكبد بـ يطلع وينزل

■ Valve Replacement Cases

هام جداً عملي (3)

N.B.
we done A Replacement Surgeries for the **Rt. Sides Valves** in a **Very Very RARE Conditions** ..
due to **LOW PRESSURE in Rt. Side** + if Complications occur After Surgery they are **FATAL** (as Pulmonary Embolism)
So, **Most Probably** it's **Mitral** or **Aortic** Valve Replacement

① أعرف إزاي أن العيان عامل **Valve Replacement Surgery** ?

- by **H/O** : العيان هـ يقول .. عملت عملية تبديل صمام
- by **Exam** : **Median Sternotomy Scar**

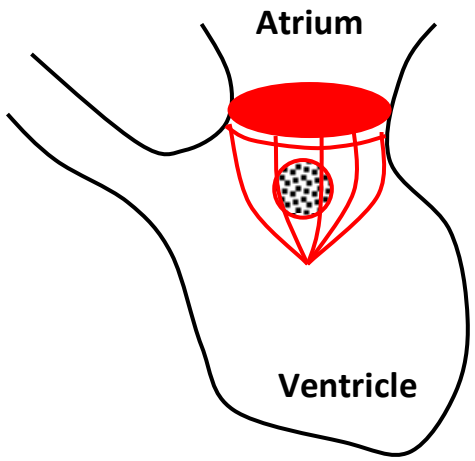
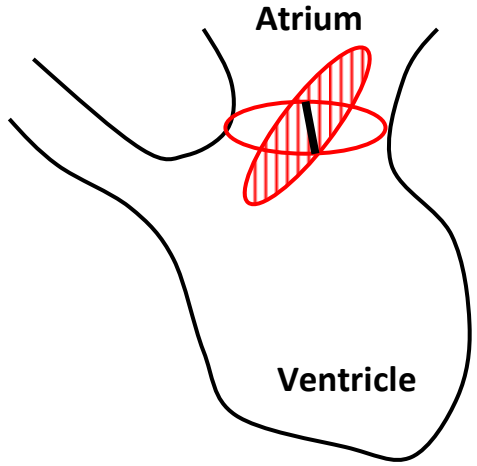
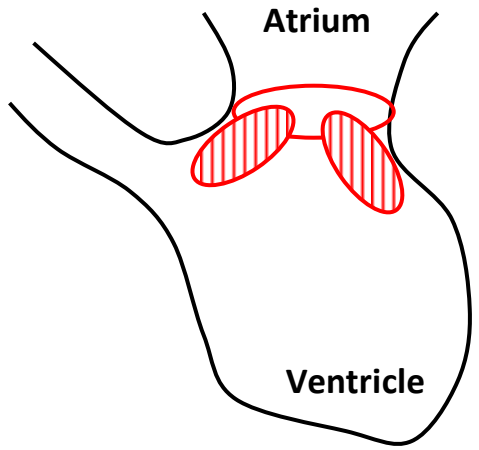
② العيان جاي لي عشان أجاوب على **3** أسئلة

		- by **H/O**:	- by **Examination** :
1	- **which Valve is Replaced** ?	ما **قبل** العملية العيان كان بـ يشتكي بـ أيه ؟! تعرف الصمام اللي كان بايظ • if Patient Complain from Dyspnea **EARLY** → **Mitral** Most Probably • if Patient Complain from **Anginal Pain** & Palpiataion while Dyspnea is **LATE** → **Aortic** Most Probably	- by **Local** Exam : هـ تسمع صوت الصمام الصناعي **Load** or **Metallic Sound** - by **Timing** : • in **S1** = **Mitral** Valve Replacement • in **S2** = **Aortic** Valve Replacement
2	- **is The New Valve is Functioning or there's Mal-Function occur** ?	ما **بعد** العملية إذا العيان رجع يشتكي من نفس الأعراض .. So, **Mal-Function** occur	- by **Local** Exam : - hearing a **MURMUR** → **Mal-Function occur** **N.B. there's may be a Functional Murmur heard [Systolic, Soft, Short, Faint, Localized]**
3	- **is there are Complications Occur After Surgery or Not** ?	ما **بعد** العملية	- by **General** Exam :
		a- **Thrombo-Embolism** — حصل لك تقل في أيدك أو لسانك	Normal **Neural Examination** & you feel All **Peripheral Pulsations**
		b- **Hemolytic Anemia** — أصفريت ولا لأ	No **Pallor** or **Jaundice**
		c- **Prosthetic Valve Endocarditis** — سخنت ولا لأ	No **Hyper-Thermia** or **Clubbing**
	N.B. there's No Complicated Pt. will be in Our Exam → So, There's Always No Major Complications Found		

③ يسألوك على الحالة كذا سؤال

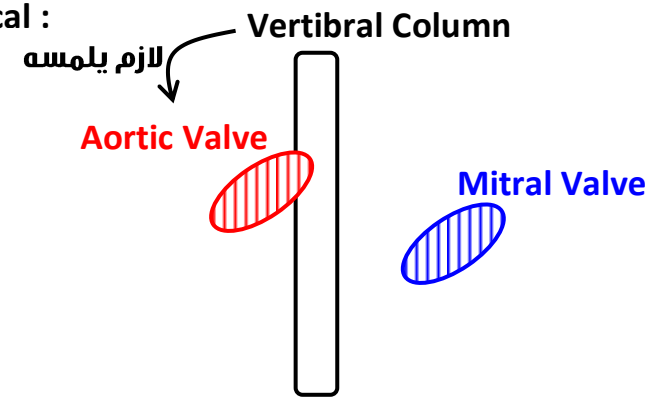
- **what is the Investigations you want do for this patient**	?	by **Scheme**
- **what is the Golden Stander in Investigations**	?	**ECHO** *esp. **TEE** & **DOPPLER**
- **what is the Treatment you want do for this patient**	?	by **Scheme** *but, we Give **Anti-Coagulant Drugs for Life**

الصمام اللي بدلناه + الغرز تبعته .. هـ تبان في الأشعة ..
وهما 3 أنواع اللي عندنا من الصمامات الصناعية ..

Cage & Ball	Tilting Disk	Bi-Leaflet
		

You will Know ώ Valve is Replaced ..

- by Anatomical :



& by the Lesion in the Heart :

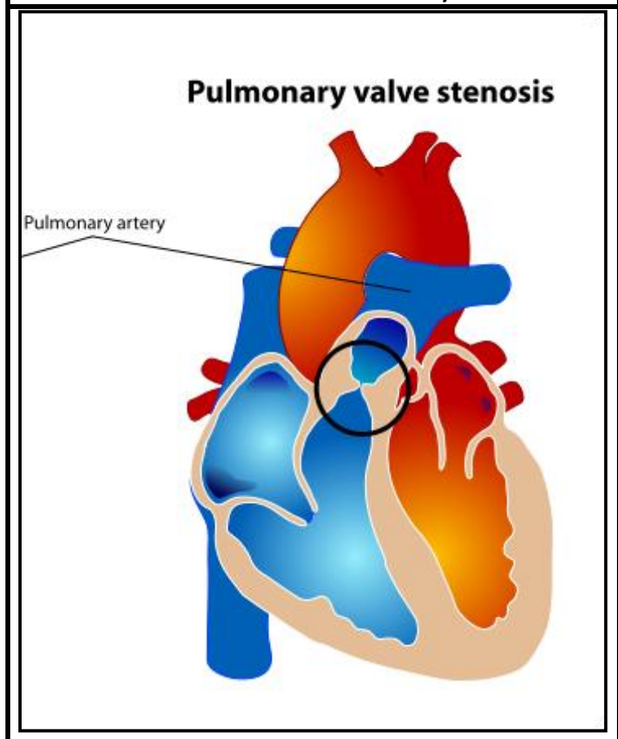
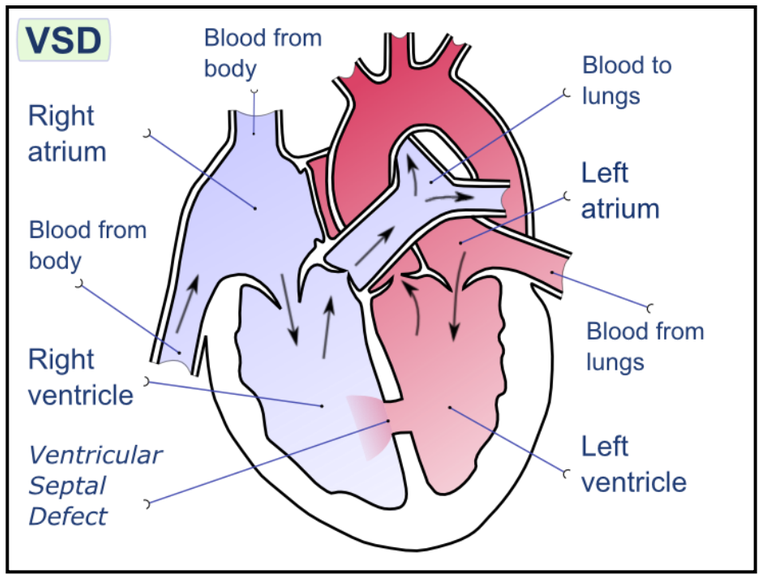
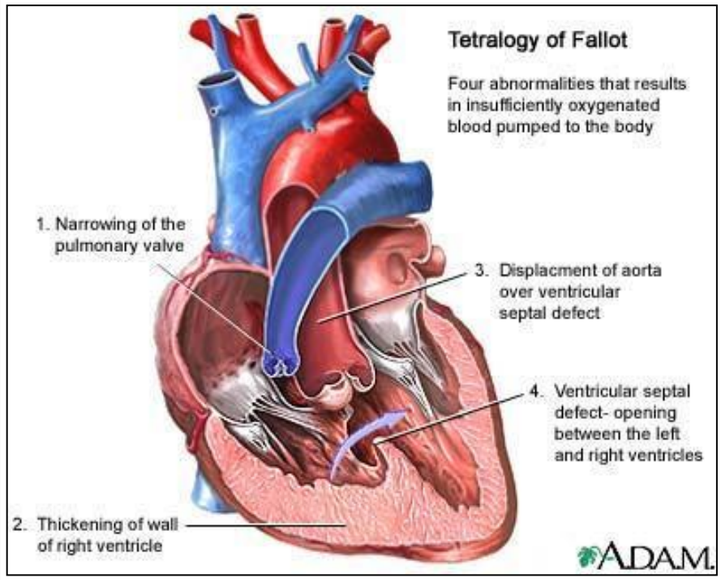
Causes of Un-equal Pulse Volume in Patient with Valve Replacement

A.F. ده الأساس **(sending Thrombus to the Hand)**

■ Valve Replacement Related :
- Thrombus .. (if Patient didn't Receive Anti-Coagulant Regularly)
- Vegetation of Bacteria on Prosthetic Valve

■ Association :
- Cervical Rib
- Aneurism
- Pancoast Tumor

Congenital Heart Diseases

	Pulmonary Stenosis (P.S.) *it's ALWAYS CONGENITAL .. Rh. Fever Never Affect Pulmonary Valve	Ventricular Septal Defect (VSD) [The Commonest Heart Disease]	Fallot Tetralogy (F4) [The Commonest Cyanotic Heart Disease]
			
1• Anatomy	There are **Valvular**, **Sub-Valvular** & **Supra-Valvular Lesions**	There are **Small** or **Big Lesions** Congenital Component It's a **Result**	**1· Infundibular P.S.** "not in the Valve" → **Dynamic Stenosis** **2· Anterior Position Overriding Aorta** → الصوت هـ يعلى في السماعة **3· Very Big VDS** → مش شغال **4· Very Mild ++ Rt. Vent.** → **Undetected Clinically**
2• Hemo-Dynamic	**P.S. is Similar to A.S. .. Except in :** - Site of Murmur - Chamber Enlargement - ttt of Choice	**· Heart → Volume Overload in 2 Sides** **· Lung → Plethora** **· Systemic Circulation → Low COP**	**Non-Oxygenated Blood in Aorta = Cyanosis**
3• Complications		**Infective Endo-Carditis (IEC)** & at Late Stage : **Eisenmenger's Syndrome**	**Infective Endo-Carditis (IEC)**
4★ H/O (Symptoms)	**Low COP Symptoms** دوخة وزغللة N.B. **Noonan syndrome** could be Association: 1- **Stunted Growth** 2- **Sub-normal Mentality** 3- **Congenital Heart Disease .. esp. P.S.** 4- **Skeletal Deformities** 5- **Facial Features**	it Depends on the **Size of Defect** · if **Small Lesion → Asymptomatic** · if **Very Big Lesion →** العيان يموت · if **Moderate Lesion → Palpitation, Low COP** دوخة وزغللة **& Dyspnea**	**1• Cyanosis** "almost this is his Complaint" هـ يقولك أنا بـ أزرق It's Onset : **Shortly After Birth (from few weeks to Months)** **NOT Since Birth** "due to presence of PDA" **[Cyanosis Shortly After Birth → Pathognomonic to F4]** **2• Squatting** العيان بـ يقرفص **Pathognomonic to F4** **3• Cyanotic Spells** "Only in SEVERE Cases" ±هام شفوي

3 Main Causes	Effect	3 Main Results
1· Exaggeration 2· Coldness 3· Infections	Spasm in Infundibular (All Blood in Aorta is Non-Oxygenated)	1· Deeply Cyanotic 2· Dyspnea 3· Convulsions

ttt of Cyanotic Spells:
1· Put the Patient in Squatting Position
2· O_2 Therapy
3· Drugs : β Blockers are the Drug of Choice here

<table>
<tr>
<td>5★ Examination (Signs)</td>
<td>
· Normal Sound
S2 : ↓ Muffled

· Murmur
· Time: Systolic Ejection
· Character: Harsh
· Site: Pulmonary Area
· Propagation: To Carotid & to Apex ..
(طـالع نـازل)

· Additional Sounds
Ejection Click
</td>
<td>
+ Chamber Enlargement (Rt. Vent.)
أضخم
Rt. Vent.
في الطب
</td>
<td>
· General Exam. : No Cyanosis & No Clubbing

· Local Exam. :
1 تثبت أن في ثُقب
By hearing the MURMUR
[↓ the Defect Size → ↑ Murmur Sound]
· Time: Pan-Systolic
· Character: Harsh
· Site: Lt. Para-Sternal Area
· Propagation: To All Auscultatory Areas .. (الـمُفتري)
· ↑↑ by: Exercise
+ Thrill

2 تشوف الثُقب عمل أيه كـ Chamber Enlargement — Rt. Vent. or Lt. Vent. or BOTH
ويـ تلاقي يـ ما تلاقيش

3 تشوف الثُقب عمل أيه في الـ Pulmonary Pressure — For Eisenmenger's Syndrome as Pulmonary HTN
</td>
<td>
· General Exam. : Cyanosis depends on <u>Severity</u>
& Clubbing depends on <u>Duration</u> بلا فائدة
+ if Severe F4 → Stunted Growth

· Local Exam. :
1· فاخر <u>Infundibular</u> P.S. → P.S. MURMUR
2· <u>Anterior Position</u> Overriding Aorta → ↑ S2
3· <u>Very Big</u> VDS → ولا حاجة
4· مش فاخر <u>Very Mild</u> ++ Rt. Vent. → ولا حاجة
كون أن ده فاخر وده مش فاخر .. ده يعني أن الدم ليه مخرجين ..
وبكده عرفنا التشخيص ..
لـ أن أغلب الأمراض بـ يكون فيها الأتنين فاخرين ..
</td>
</tr>
<tr>
<td>6• Investigations</td>
<td>Best Investigation is : ECHO-Doppler
& Assess the Severity by Pressure Gradient</td>
<td>ECHO-Doppler .. it will show :
· The Defect
· Any Chamber Enlargement
· الأهـم *Pulmonary Pressure</td>
<td>
· E.C.G.
· X-ray
· ECHO-Doppler
</td>
</tr>
<tr>
<td>7• Treatment</td>
<td>Balloon-Pulmonary-Valvo-Plasty is the ttt of Choice</td>
<td>
· Medical ttt : <u>Prevention of IEC</u> (Antibiotics Before & After Any minimal Procedures)
· Interventional ttt : Closure by <u>Umbrella</u> (via Catheter)
· Definitive ttt : <u>Open Heart Surgery</u> .. Indicated to :
Patient who are Liable to Develop Eisenmenger's Syndrome
(Detected by Measuring Pulmonary Pressure)
[if Pulmonary Pressure = ½ Systemic Pressure → Close the Defect]
</td>
<td>
· Medical ttt : <u>Prevention of IEC</u> (Antibiotics Before & After Any minimal Procedures)
& for Cyanotic Spells give β Blockers
· Interventional ttt : Useless لـ أن المُشكلة في العضلة
· Definitive ttt :
<table>
<tr><td><u>Closed Heart Surgery</u></td><td>Shunt OperationS .. Shunt from Aorta to Pulmonary
The most Famous is Blalock-Taussig Operation</td></tr>
<tr><td><u>Open Heart Surgery</u></td><td>Total Correction Operation هـ نصلح كله :)
1· <u>Infundibular</u> P.S. → Resection وسعناه
2· Overriding Aorta → Closed in Rt. Vent. قفلناه
3· <u>Very Big</u> VDS → Very Big Patch سدیناه
4· <u>Very Mild</u> ++ Rt. Vent. → سیبناه</td></tr>
</table>
</td>
</tr>
</table>

■ Closed Heart Surgery Cases

For **Mitral Stenosis ONLY**
(Closed Mitral Valvotomy or **Commissurotomy)**

①	**Indications**	?	- by **H/O** : **Severe Symptoms (Dyspnea) Not Controlled Medically** or **Dangerous Symptoms (Hemoptysis)** - by **Investigations** : **ECHO-Doppler .. if Valve Area LESS than 1 Cm.**
②	**Prerequisites**	?	**Isolated Lesion (No M.R.) & Not Calcified**
③	**Contra-Indications**	?	If **Double Lesion** or **Calcified**

What Happen in M.S. ?!

Fibrosis in Rh. Fever

طري في النص
Rigid Cusps but Liable in the Center

- in Valve Opening : it Give **Opening Snap**
- in Valve Closure : it Give ↑ **S1**

& Both are Disappear with Calcification

**Murmur** Caused by the Stenosis itself

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② العيان جاي لي عشان أجاوب على **3** أسئلة

		- by **H/O**:	- by **Examination** :
1	- أعرف إزاي أن الحالة **Closed Commissurotomy** ?	العيان هـ يقول : وسعوا لي صمام (عملت عملية توسيع)	- by **Lateral (Infra-Mammary) Thoracotomy Scar**
2 & 3	- طب العيان جاي لي ليه - هـ أعرف هو جايلي بـ أيه إزاي ?	في الطب عموماً .. واحد عامل جراحة وجاي لـ الدكتور .. هما 3 إحتمالات ..	
		1- for **Follow-up** الجراحة ناجحة :	
		مش هـ يشتكي من حاجة	س لـ الإمتياز : إذا العملية ناجحة تسمع أيه ؟! **No Murmur ..** **but still there are Opening Snap & ↑ S1**
		2- for **Complications After Surgery (e.g. converted into M.R.)**	
		Palpitation	**Systolic Murmur**
		3- for **Recurrence .. (Re-Stenosis - M.S.)**	
		Dyspnea	**Diastolic Murmur**

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③ يسألوك على الحالة كذا سؤال	- **in case of Re-Stenosis .. what is the Causes**	?	• **99%** it's **Recurrent Rheumatic Activity** (**Re-Fibrosis**) even if Patient didn't give a H/O of Rheumatic Activity [**Subclinical Attack**] • **1%** **Under-Correction** from Surgeon قولها على استحياء
	- **in case of Failed Commissurotomy what is the Treatment**	?	**Valve Replacemnt**
	- **is Incidence of Commissurotomy ↑ or ↓**	?	**↓ due to Balloono-Plasty is now Considered the ttt of Choice**

Cardiology Scheme

 # How to Reach the Diagnosis ?!

▪ from **H/O**

1· **Dyspnea** (كرشة نفس أو نهجان) from the Start ➔ **M.S.**
2· **Ir-regular Palpitation** (رفرفة ملخفنة) in the course of Disease ➔ **A.F.** most probably with **M.S.**
3· **Systemic Venous Congestion Symptoms** (رجله ورمت وبطنه عليت وجنبه بيوجعه والأكل بيتعبه) ➔ **T.R. (**have to be associated with **MVD)**
4· **Low COP Symptoms** (دوخة وزغللة وإغماء) **± Angina Pain** from the Start ➔ **A.S.**
5· **Regular Palpitation** (رفرفة مُنتظمة) from the Start ➔ **Regurge** (M.R. or A.R.)
6· **Cyanosis** (بيزرق) **+ Squatting** (بيقرفص) from the Start ➔ **F4**
7· **Young Onset Complain** (العيان بدأ يشتكي من وهو صغير أياً كان التشخيص) ➔ Etiology is **Congenital**

▪ from **General Exam**

1· **Blood Pressure : ↑ Systole / ↓↓ Diastole = Pulse Volume > 60 ➔ A.R.** (& search for Other Peripheral Signs of A.R.)
2· **Pulse : Ir-regular ➔ A.F. ➔ M.S.** (& Revise the between A.F. & Extra-Systole)
3· **Orthopnea** ("قاعد" دخلت ع المريض لقيته مش قادر ينام) ➔ **M.S.** (عشان ده الوحيد اللي بـ يعملها بدري .. الباقيين يعملوها متآخر أووووي)
4· **L.L. Edema** or **Ascites ➔ T.R. (**have to be associated with **MVD)**
5· **Cyanosis** or **Clubbing➔ F4**
6· **Very Tall & Thin Patient ➔ Marfan $** (& search for Other Signs of Marfan $) ➔ **A.R.**
7· **Stunted Growth** (العيان قصير جداً) ➔ **Congenital (**either it's **The Cause esp. if Sever,** or it's **Association** as Down $ or Noonan $)

▪ from **Local Exam**

1st **Auscultation**
هـ تسمع في مكانين

1st Put the Stethoscope on **2nd Aortic Area** :
If you Hear a **Murmur**

Systolic Murmur

Then **you have to move in the 4 Directions** to get the **SITE OF MAX. INTENSITY**
وأوعـى تقول التشخيص قبل ما تتحرك فوق وتحت ويمين وشمال ..

- if **Site of Max. Intensity** is **Apex** ➔ **M.R. (Posterior Leaflet)**
- if **Site of Max. Intensity** is **Pulmonary Area** ➔ **P.S.**
- if **Site of Max. Intensity** is **Tricuspid Area** ➔ **T.R. (**associated with **MVD)**
- if **Site of Max. Intensity** is **1st Aortic Area + reaching the Carotid** ➔ **A.S.**
- if **the Sound is ↓↓ wherever you Move** ➔ **VSD**

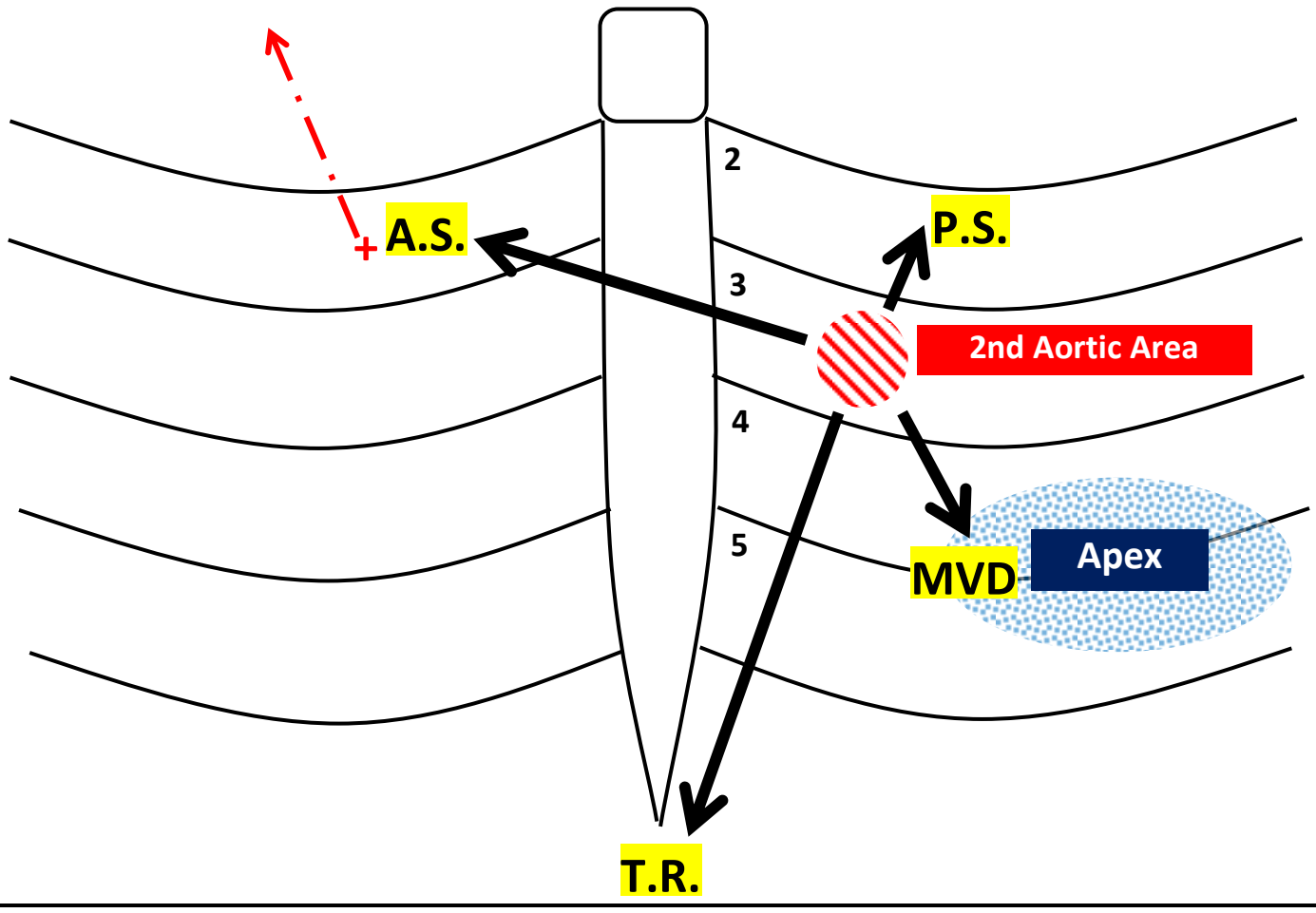
Diastolic Murmur
Then it's **A.R.**
+ **Peripheral Signs**
will lead you

2nd Put the Stethoscope on **Apex** : سواء سمعت حاجة في اللي قبله أو ما سمعتش
If you Hear a **Murmur = MVD** ع طول

Now, Search if it Localized or Propagated .. by **moving the Stethoscope to the Axilla**

Propagated to Axilla ➔ **M.R. (Anterior Leaflet)**
+ it's **Systolic**

Localized ➔ **M.S.**
+ it's **Diastolic**



then **Inspection + Palpation & Percussion**

to Detect **Any Chamber Enlargement**
+ أنتا عارف أيهم ممكن يكبر بعد ما جبت التشخيص من اللي فوق فـ هـ تدور بـ ذمة